



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/607,604 | 06/30/2000 | Robert C. Allison | PD-00W014 | 8542 |

7590 12/03/2002

Leonard A. Alkov, Esq.
Raytheon Company
E1/E150
P.O. Box 902
El Segundo, CA 90245-0902

EXAMINER

LEE, BENNY T

ART UNIT PAPER NUMBER

2817

DATE MAILED: 12/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

| | | | |
|-----------------|--------|----------------|---------------|
| Application No. | 607604 | Applicant(s) | Allison et al |
| Examiner | B. Lee | Group Art Unit | 2817 |

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE Three (3) MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication .
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

Responsive to communication(s) filed on 36 August 2002.

This action is FINAL.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims27

Claim(s) 5, 13, 14, 21, 26, 28, 29, 31-36 is/are pending in the application.

Of the above claim(s) _____ is/are withdrawn from consideration.

Claim(s) _____ is/are allowed.

Claim(s) 27, 5, 14, 21, 28, 29, 34; 31, 35, 33, 36; 13, 26 is/are rejected.

Claim(s) _____ is/are objected to.

Claim(s) _____ are subject to restriction or election requirement.

Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The proposed drawing correction, filed on _____ is approved disapproved.

The drawing(s) filed on _____ is/are objected to by the Examiner.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All Some* None of the CERTIFIED copies of the priority documents have been received.

received in Application No. (Series Code/Serial Number) _____.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

Attachment(s)

Information Disclosure Statement(s), PTO-1449, Paper No(s). _____ Interview Summary, PTO-413

Notice of Reference(s) Cited, PTO-892 Notice of Informal Patent Application, PTO-152

Notice of Draftsperson's Patent Drawing Review, PTO-948 Other _____

Office Action Summary

Art Unit: 2817

Claims 13, 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Note that claims 13, 26 continue to improperly depend from canceled claims 12, 25, respectively.

Claims 27, 5, 14, 21, 28, 29; 34, 31, 35; 33, 36 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In claims 27, 31, 33, note that the amended recitation of “selectable individually and in parallel combinations” differs from the original recitation of “selectable individually or in parallel combinations” and thus must be treated as “new matter”.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 31, 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer in view of Loo et al (of record).

Meyer (fig. 1) depicts a reflective phase shifter comprising a hybrid coupler responsive to an input (10A) and providing an output (10D). A switch arrangement (12) connects ports (2, 3) of the hybrid coupler to respective parallel combinations (13) of impedances (Z, Z_1). In operation the switches can individually switch between corresponding impedances (Z, Z_1). For

Art Unit: 2817

examples, both impedances (Z) can be selected in an individual manner. Meyer differs from the claimed invention that the switches (12) are not of the MEM type.

However, as evidence by Loo et al, the use of MEM switches for phase shift application is considered conventional in the art.

Accordingly, it would have been obvious, in view of the references, to have alternatively used MEM switches as the switches (12) of Meyers. Such a modification would have been considered an obvious substitution of art recognized equivalent switching means which would not have affected the function of the phase shifter, thereby suggesting the obviousness of the substitution.

Claims 33, 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakahara (of record) in view of the combination of Meyer and Loo et al (of record).

Nakahara (fig. 7) discloses an exemplary multi-section reflective phase shifter (700) with series connected section (100, 300).

Accordingly, it would have been obvious in view of the exemplary of the teaching in Nakahara that other reflective phase shifters (e.g. like those of the above combination of Meyer and Loo et al) would have similarly been series connected to provide the benefits of extended range afforded by multi-section phase shifters, as taught by Nakahara, thereby suggesting the obviousness thereof.

Claims 27, 5, 14, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Loo et al (of record) and Meyer taken together.

Art Unit: 2817

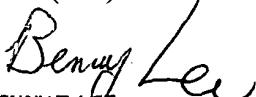
Loo et al (Fig. 1) discloses a phase array antenna system including antennas (60), phase shift paths, MEM switches (100A-100E), a manifold (72) and a control circuit (80). However, Loo et al fails to disclose the phase shifters as reflective phase shifters with selectable parallel combinations of impedances.

Accordingly, it would have been obvious to have provided reflective phase shifters of the type taught by Meyer. Such a modification would have been considered an obvious substitution of art recognized phase shifters which would not have affected the function of the phase array antenna of Loo et al. Note that as an obvious consequence of the modification, such reflective phase shifters would have included MEM switches.

Applicant's arguments with respect to claims 5, 25, 26; 9, 13, 14, 30, 32; 21, 27, 28, 29, 31, 33 have been considered but are moot in view of the new ground(s) of rejection.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Foti discloses a reflective; phase shifter with plural parallel elements.

Any inquiry concerning this communication should be directed to Benny Lee at telephone number (703) 308-4902.


BENNY T. LEE
PRIMARY EXAMINER
ART UNIT 2817
B LEE/pj

11/27/02